

Critical Theory in MIS Research, 1990-2001: Looking Back and Moving Forward

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Abstract

A review of five major journals in the Management Information Systems (MIS) field reveals that the majority of research articles engaging with Critical Theory, from the period 1990 to 2001, are of a conceptual nature, focusing primarily on systems development. Two reasons are suggested for the comparatively low level of engagement with Critical Theory in empirical research efforts: lack of a critical theory method and reluctance to engage with the theory's emancipatory commitments. A critical theory method that encompasses both quantitative and qualitative data collection methods is advanced. In addition, a more practice-oriented way of thinking about emancipation is proposed.

About the author

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Critical Theory in MIS Research: An Exploration

Introduction

How has critical theory been applied in MIS Research? Have discussions of critical theory remained primarily at the conceptual level or has the theory been applied in empirical work? If so, which research areas has it been applied to: systems development, implementation, or social impacts? The crux of the research problem for this paper is an assessment of whether critical theory has been and can continue to be of assistance in answering MIS research questions. While Klein and Myers (1999, p.69) declare that "IS research can be classified as critical if the main task is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light" this paper will take a somewhat different, but related approach by focusing on the Habermasian strain of critical social theory and its use by IS researchers. The focus on Habermas's theorizing is appropriate in that his work is seen as having a greater impact on MIS research than other forms of critical social theory (Mingers 2001, Ngwenyama and Lee 1997). Although some research has considered other approaches (*cf.* Probert's (1999) discussion of Adorno's theory) the majority of the critical theory work done in MIS has been premised on an understanding of Habermas's theory (e.g. Hirschheim and Klein 1989, 1994; Iivari et al. 1998; Lyytinen 1992; Mingers 1980, 2001; Te'eni 2001). By explicitly acknowledging this focus, this research continues to build on the foundation laid by previous researchers.

This study makes several contributions. It provides a synopsis of the state of critical theory research within the MIS discipline since 1990. Providing a synthesis of what has been done to date is useful in terms of discussing what needs to be done in future research. The paper also suggests reasons for the relatively low level of engagement with critical theory, including problems with the political commitments implicit in the theory and the lack of a specific critical theory method. Within the Consumer Research field, Murray and Ozanne (1991) have advanced a method for critical consumer research to counter the latter criticism. The paper discusses how this method can be combined with one suggested by Held (1980) and molded into a critical theory research method that could be employed by MIS researchers.

The paper is organized as follows: the next section provides a brief review of the origins of critical theory and the particular stream of theorizing associated with the work of Jurgen Habermas. The third section details the method of the current study, outlining the article search and coding procedures. Section four reports the results of the study, specifying how the articles identified for review have engaged with the theory and what particular areas of IS research they are concerned with. The fifth section contains a discussion of possible reasons why critical theory may not be being used in empirical research and highlights the benefits and drawbacks of a critical theory approach. The final section outlines the limitations of the current study and makes recommendations for future research.

What is critical theory?

Although the origins of critical theory can be traced back to the work of Karl Marx (Seidman 1989), Max Horkheimer is credited with coining the term 'critical theory' (Ngwenyama and Lee

1997). The label 'critical theory' was originally associated with the work of various philosophers connected with the Institute of Social Research, in Frankfurt (Mingers 1980, Murray and Ozanne 1991). The 'Frankfurt School' theorists – Max Horkheimer, Theodor Adorno, and Herbert Marcuse – were reacting to what they perceived to be a failure of Marx's social theory. Critical both of capitalism and Soviet socialism, they focused on returning to the foundational principles of Marxism in order to (re)interpret and extend those concepts into new areas (science, technology, mass culture, the family), with the ultimate goal of providing an alternative route to a true, free and just life (Held 1980, Murray and Ozanne 1991).

More recently, the terms 'critical theory' and 'critical social theory' have come to be associated with the work of Jurgen Habermas, the German social theorist who worked as an assistant to Adorno and was influenced by the thought of the Frankfurt school. Habermas continues to be involved in a project to reconstruct Marxism, but his work isn't merely an extension of the thought of the Frankfurt school. In the course of engaging with their ideas and with those of Marx, he criticizes and contradicts received wisdom. Habermas's goal is to "develop a theory of society with a practical intention: the self-emancipation of people from domination" (Held 1980, p. 250).

Critical theory shares this focus on emancipation with other perspectives, such as poststructuralism, feminist analysis, radical Weberianism, dependency theory (in international relations), and liberation theology (Alvesson and Willmott 1992, Dryzek 1995). In addition to a focus on emancipation, these theories share a recognition that not only socio-economic class, but also race and gender, can serve as a basis for repression and domination (Orlikowski and Baroudi 1991). But, as Alvesson and Willmott (1992) suggest, it is the breadth of issues that can be investigated via a critical theory perspective (i.e. epistemological issues, communicative action, power and ideology, technocracy) that makes it distinct from mere critique and other forms of critical analysis. Critical theory research aims to unseat the status quo, by bringing structural contradictions in social systems to light, thereby initiating a process of transformation (Orlikowski and Baroudi 1991).

As it is used here, the term 'critical theory' refers not just to one theory but rather to the output of Habermas's research program that has extended over a number of years. In order to understand whether and how critical theory can be of use to MIS researchers, we need to understand Habermas's work in more detail. As is typical of research efforts that span long time periods, Habermas's theory has changed over time and it is important that we are cognizant of these changes. An abbreviated outline of Habermas's work, specifying some of the major constructs and theories, follows.

Theory of Cognitive Interests

Much of Habermas's work in the 1960s and 70s was concerned with developing an epistemology for critical theory by uncovering the conditions that make possible the acquisition of knowledge. The resultant 'theory of cognitive interests', outlined in *Knowledge and Human Interests* (1971) and *Theory and Practice* (1974), is the first step in elaborating the relationship of knowledge to action. Habermas understands knowledge in light of the problems people encounter in their

efforts to produce and reproduce their existence (Held 1980); for Habermas knowledge isn't some transcendental thing but is rooted in historical material conditions.

According to Habermas, humans organize their experience in terms of *a priori* interests, i.e. they produce from nature what is needed for material existence through manipulation and control of objects and by communicating with other humans by means of intersubjectively understood symbols. Therefore, humans are interested in knowledge that allows them to 1) control objectified processes, and 2) communicate. A third interest, necessary for understanding the first two interests, is an interest in reason (i.e. the capacity to be self-reflective and self-determining, to 'act rationally'), facilitated through free, open communications (Lyytinen and Klein 1985). Knowledge which enhances autonomy and responsibility, that is, knowledge which 'emancipates', is also generated and valued (Held 1980).

The result of Habermas's theorizing is a model which links knowledge interests to social action and mediating elements or 'the means of social organization' (Held 1980). Lyytinen and Klein (1985, p. 224) summarize his theory in the table reproduced, in a slightly modified form, below:

Table 1: Aspects of Knowledge Interests

Knowledge Interest	Social Action	Mediating Elements	Sciences	Purpose	Process
Technical	Purposive-rational	Work systems	Empirical-analytic	Explanation, prediction, control	Scientific method, verification
Practical	Communicative action	Cultural institutions, natural language	Historical-hermeneutic	Understanding of meaning, expansion of inter-subjectivity	Idiographic method, dialogue rules of hermeneutics
Emancipatory	Discursive action	Power, unwarranted constraints	Critical sciences, psycho-analysis, philosophy	Emancipation, rational consensus	Reflective method, criticism of assumptions

Each knowledge interest is linked to a type of social action and an underlying 'real world' element. Thus, the practical knowledge interest (concerned with understanding of self and other) manifests itself through communicative action, which takes place through 'ordinary' or 'natural' language, with the aim of achieving mutual understanding. The 'Sciences' column demonstrates how disciplines can be classified according to their primary knowledge interest, while the 'Purposes' column highlights the reasons behind a knowledge interest. Finally, the 'Process' column indicates the methodologies employed in the pursuit of the related knowledge interest.

According to Habermas's theory, there are two basic types of social action: purposive-rational and communicative (Lyytinen and Klein 1985). Actions directed towards achieving success are labeled purposive-rational, and are of two main types: 1) instrumental – directed towards objects

in the natural world, achieved by following technical rules, and derived from empirical technical knowledge, and 2) strategic – oriented towards people or 'rational opponents', following decision rules, and associated with knowledge of social situations and values. Strategic action also has two types: open (social behaviour) and covert (i.e. deception).

Communicative action takes place through language with the goal of achieving mutual understanding. According to Habermas's way of thinking, the very act of communicating raises certain validity claims. That is, in the course of our normal daily communications with others, we take for granted certain things. We assume, for example, that what we are being told is 'true', and that if we demanded it, our interlocutor could prove the truth of his/her statements. Communicative interaction can continue only to the degree to which participants sustain validity claims (Held 1980).

The Theory of Communicative Action

Habermas's increased focus on language and the capacities embedded in it began around 1970, progressed through *Communication and the Evolution of Society* (1979) and culminated in *The Theory of Communicative Action* (1984, 1987) (Dryzek 1995). According to Habermas's theory, there are four types of validity claims: 1) comprehensibility: the utterance is intelligible, understandable, 2) truth: an utterance's propositional content is true; it represents a fact, 3) rightness/correctness: the utterance is legitimate and appropriate in context, and 4) truthfulness/sincerity. Only comprehensibility/ intelligibility can be fulfilled immanently, that is, a sentence must be grammatical and conform to an established system of rules (Held 1980). The other types of validity claims must be established through discourse or 'discursive action'. In discourse assumptions are carefully examined to test their validity, and all participants have an equal opportunity to put forward arguments for and against.

This brief summary of Habermas's social theorizing has highlighted how knowledge interests (technical, practical and emancipatory) can be linked with categories of social action (instrumental, strategic, communicative and discursive) and has identified four validity claims inherent in communicative action. The next section inquires into the use of these constructs and the Habermasian view of critical social theory within the IS literature.

Method

A review of articles from major MIS journals for the time period January 1990 to September 2001 was conducted to assess the extent to which critical theory has been used in MIS research.

Sample selection

Mylonopoulos and Theokaris' (2001) survey of the top-ranked MIS journals was used to identify journals to be included in the study. The top five journals in their 'world' rankings were selected. These include, in rank order, *MIS Quarterly*, *Information Systems Research*, *Communications of the ACM*, *Journal of Management Information Systems* and *Management Science*. There appears to be an enduring consensus on the quality of these journals; the same five (in slightly different order) appeared at the top of an earlier ranking as well (Hardgrave and Walstrom 1997). The

selection of these journals also parallels previous reviews of the MIS literature (*cf.* Orlikowski and Baroudi 1991, Walsham 1995).

Identifying articles for inclusion in the study involved a three-stage process. During the first stage, the ABI/INFORM online search engine was used to search both the 'header fields' (i.e. titles, keywords and abstracts) as well as the text of the articles (including the reference/bibliography sections) for the following terms: critical theory, critical social theory, Habermas and emancipation (the truncation command was used to return results for 'emancipatory' as well as 'emancipated').

The second stage of the article identification process involved manually searching journals. For two of the journals included in the study, *Information Systems Research* and *Management Science*, only abstracts were available online, so a manual search was conducted for the entire time period covered by the study. Other journals were available online in full-text format for only part of the time period, requiring a manual search to achieve full coverage. For example, *MIS Quarterly* is available online in full text format from December 1987 to September 1999 inclusive. The manual search procedure included reviewing the abstract and keywords (if provided) for the same terms used in the first stage, described above. The reference section was then scanned for citations that would indicate a discussion of critical theory. Related citations were considered to include publications by Habermas, as well as MIS authors who have written on critical theory, i.e. Lee, Ngwenyama, Klein, Hirschheim and Lyytinen.

A third phase of article identification involved reviewing the reference section of each article identified during phases one and two for additional articles. The ISWorld website was also consulted (www.isworld.org). This resulted in six additional articles being identified, many from earlier time periods, some of which proved seminal to the development of the paper. The article identification process resulted in 32 articles being selected for review. Table 2, below, provides a breakdown of the number of articles identified by journal.

Table 2: Number of Articles Identified for Study by Journal

Journal	Number of articles identified
MIS Quarterly	12
Information Systems Research	8
Communications of the ACM	4
Journal of Management Information Systems	2
Management Science	0
'Phase 3' articles (various sources)	6
Total	32

Review of articles and coding

Articles were reviewed using a two-stage method. Initial sorting was conducted using a referential coding scheme (Lacity and Janson 1994). That is, each of the search terms identified was expected to directly 'refer' to the construct under study in the article. This resulted in the exclusion of 10 articles, where 1) the only reference to critical social theory was in the title of an article cited in the reference section; 2) aspects of emancipation were discussed, but not within a critical theory framework; 3) other aspects of Habermas's work were cited, and; 4) reference was made to MIS critical theory articles, but not to the elements of those articles dealing specifically with critical theory. The remaining twenty-two articles were read thoroughly and an emergent, thematic coding scheme, revised in an ongoing manner, as employed. As a result, the twenty-two articles were coded into four categories: mention, conceptual (combination), conceptual (solo), and empirical.

Articles that mentioned critical theory in passing, that is, its existence was acknowledged but the article pursued a different methodology, were coded 'mention'. Webster's (1998) discussion of desktop videoconferencing is one example. The author explains that case studies can be positivist, interpretivist or critical, but her specific case study does not follow a critical theory perspective. Conceptual articles which discussed critical theory in comparison with other perspectives (a more extensive discussion than what occurred in the articles coded 'mention' was required) were coded as 'conceptual (combination)'. Orlikowski and Baroudi's (1991) review of MIS research approaches is a case in point. Conceptual articles which discussed critical theory alone, without extensive comparison to other perspectives, were coded 'conceptual (solo)'. Te'eni (2001) would be an example of such an article. Habermas's theory of communicative action forms the theoretical base for a new model of organizational communication; other theoretical perspectives are not discussed. A final category, 'empirical', was established to provide for empirical articles that employed a critical theory methodology. Appendix A contains a complete listing of all the articles reviewed and the rationale for their categorization.

Results

Of the twenty-two articles coded, nine fell into the 'mention' category, seven were coded as conceptual (combination), five as conceptual (solo), and only one article met the criteria for inclusion in the empirical category.

Mention

The largest category consisted of 'mentions-in-passing'. Venkatesh and Morris (2000), Benbasat and Weber (1996), and Robey (1996) all identify critical theory as one of several MIS research methods. Kumar et al. (1998) and Sillince and Mouakket (1997) briefly make reference to the idea of 'validity claims'. Lee (1999) discusses critical theory in terms of the rigor versus relevance debate. Ravichandran and Rai (2000) make reference to Hirschheim and Klein's (1994) discussion of emancipatory principles of MIS development. While these brief mentions may not seem to amount to much, they are important in the sense that they indicate an awareness within the research community of critical theory, its objectives and its methodological approaches.

Conceptual (combination)

Articles in this category referred to critical theory in comparison to other theories. These articles took several forms. For Klein and Myers (1999), Iivari et al. (1998) and Hirschheim and Klein (1989) an understanding of critical theory was essential to the formulation of their arguments, but they weren't necessarily arguing in favor of a critical theory approach. Orlikowski and Baroudi's (1991) summarized MIS research efforts to date, and argued in favor of the expanded use of methods other than positivism. While they presented arguments in favor of critical theory, they also pointed to the problems inherent in its use.

A smaller subset of these articles either argued in favor of a critical theory approach (Ngwenyama and Lee 1997) or used components of Habermas' theory as the foundation for their own theorizing (Mingers 2001). Ngwenyama and Lee (1997, p. 152) applied a critical theory perspective to the discussion of communication richness, suggesting that it "involves not only understanding what the speaker or writer means, but the testing of validity claims associated with the action type enacted by the speaker or writer. The results of the tests enable the listener or reader to detect and analyse distorted communications." Here the authors use Habermas's four basic types of validity claims (comprehensibility, truthfulness, legitimacy/appropriateness and sincerity) to define what they mean by distorted communications. Mingers's (2001) objective was to argue in favour of multi-method, multi-paradigm research designs. He cites Ngwenyama and Lee's (1997) extension of Markus's (1994) research results as an example of the benefits that can accrue from multi-method research.

Conceptual (solo)

Of the five articles that were coded into this category, three were the result of the 'third phase' of the article identification process. These three articles, all authored or co-authored by Kalle Lyytinen (1985, 1988, 1992), focus specifically on explicating Habermas's theories. For example, Lyytinen and Klein (1985) employ Habermas's categorization of social action as a framework to classify existing research on information system use and development. Their results indicated a lack of research into the areas of 1) covert strategic action related to both MIS use and development, 2) open strategic action related to MIS use, and 3) discursive action associated with both MIS use and development. Hirschheim and Klein's (1994) article goes back to the neohumanist philosophy which undergirds Habermas's work to suggest that MIS development approaches, and in particular the ETHICS approach (Mumford 1983), could be modified to include a more explicit focus on emancipation.

The final article in this category, Te'eni's (2001), develops a comprehensive model of organizational communication, based on Habermas's theory of communicative action. As Te'eni (2001, p. 259) interprets Habermas, "Communicative action...takes place in relation to three additional factors -- culture, society, and person -- that together constitute the 'lifeworld', which serves as the context for communication." Te'eni substitutes 'person' with 'actor in an organization', 'society' with 'organization' and 'culture' is considered as both 'organizational culture' and 'national culture'. He then uses the theory of communicative action to, first, define the impact of communication as mutual understanding and relationship, and second, to identify obstacles to action and relationship (Te'eni 2001, p. 262). Of all the articles in the study, Te'eni's

shows the clearest signs of following in a tradition of critical theory research, employing concepts from earlier work (e.g. Ngwenyama and Lee 1997).

Empirical

The sole empirical example identified in the study was Forester's (1992) critical ethnography. Although not an information technology study in the strictest sense, the paper was included because of its influence on other MIS research (e.g. Hirschheim and Klein 1994). Forester uses Habermas's (1979) account of the pragmatics of communicative action from *Communication and the Evolution of Society* to examine how the four validity claims actually work. He notes that in conducting such studies, the point is not to predict what actors will do, but rather to understand how much is going on and how much is at stake when we act communicatively.

Major topic areas of Conceptual and Empirical Articles

The thirteen articles coded into the conceptual and empirical categories were further sorted by area of MIS research: systems development, MIS use, research methods (reviews as well as suggestions for increased use of new methods) and agenda for critical social theory in MIS research. Forester's (1992) study was not classified since it is concerned with more general management research areas (i.e. the communication that forms the subject matter of his analysis was not computer mediated). As Table 3 indicates, the research area most frequently discussed was that of systems development.

Table 3: MIS Research Areas

Article	Systems Development	MIS Use	Research Methods	Agenda for CST Research
Hirschheim and Klein (1989)	X			
Hirschheim and Klein (1994)	X			
Iivari, Hirschheim and Klein (1998)	X			
Klein and Myers (1999)			X	
Lyytinen (1992)				X
Lyytinen and Hirschheim (1988)		X		
Lyytinen and Klein (1985)	X	X		
Mingers (1980)	X			
Mingers (2001)			X	
Ngwenyama and Lee (1997)		X		X
Orlikowski and Baroudi (1991)			X	
Te'eni (2001)	X			
Total	6	3	3	2

In summary, the review of major MIS research journals resulted in the identification of a number of articles concerning critical social theory. Of particular note was the dearth of empirical studies identified. The following section discusses some possible reasons for this.

Discussion

The lack of empirical articles identified in this study is in line with the results of previous research. In their study of articles published from 1983 to 1988 in major American MIS journals¹, Orlikowski and Baroudi (1991) did not find one article that employed a critical theory approach to empirical research. In 1992 (p. 159) Lyytinen asserted that, "critical and 'continental' research philosophies, being alien to the 'received view', remain largely unknown." Additionally, Hirschheim and Klein (1994, p. 84) have commented that "Virtually no published examples exist of how neohumanist values [the philosophy underlying critical social theory] have been implemented in practice." There are a number of possible reasons for the finding of a lack of empirical studies applying a critical theory methodology.

The first possibility is that the finding of 'no empirical articles' is an artifact of the journals chosen. As Orlikowski and Baroudi (1991) note, the exclusion of European journals from their sample may have meant that potential exemplars were missed. Certainly, there appears to be a richer tradition of critical theory research being published in European or other-than-major journals. Koch's (2000) study of the impact of the virtualization of manufacturing organizations on traditional union strategies is a case in point. However, two other reasons for the lack of empirical studies employing a critical theory perspective must also be considered. The first is the lack of a specific critical theory method. The second is somewhat more subtle, in that the idea of 'emancipation' and of researchers as 'emancipators', may not sit well with researchers untutored in the intricacies of social theory.

Lack of a specific critical theory method

Lyytinen and Klein (1985, p. 230) have suggested that critical social theory "is not a research methodology in the sense that it tells us how to do research," while Truex (in Boudreau 1997) has stated that there is no one method for 'doing' critical theory. In their review, Orlikowski and Baroudi (1991, p. 23) identified the lack of common standards as one of the drawbacks of critical theory, with the result that other researchers may feel uncertain or uneasy about the results of critical research. These statements highlight some of the difficulties facing researchers who might be interested in taking a critical theory approach to their research.

Critical theory is often aligned with what have come to be known in the MIS discipline as 'interpretive' approaches to research. Long-term historical and ethnographic studies have been considered the methods of choice for critical researchers (Orlikowski and Baroudi 1991), while other methods including cognitive mapping, discourse analysis, critical ethnography, and action research² have also been employed (Boudreau 1997). But Habermas does not outline a strictly interpretive method -- quite the contrary. He questions the ontological assumptions of both

¹ Their study included articles from *MIS Quarterly*, the *Communications of the ACM*, the *Proceedings of ICIS*, and *Management Science*.

² The basic assumptions of action research (that the researcher abandon his/her objective stance as an 'outsider' and become involved in organizational learning and efforts toward improvement) mesh well with the critical theory premise that theory and practice must be combined. It is not sufficient that researchers merely critique, they must, instead, become actively involved in trying to ameliorate the human condition (Ngwenyama in Boudreau 1997).

positivists, who "forget that our social world is a historical product", and interpretivists, who "overlook the material dimensions of reality" (Murray and Ozanne 1991, p. 132). Instead, he seeks a third way, suggesting a combination of positivist and interpretive methods that will result in a synergism with emancipatory outcomes (Lyytinen and Klein 1985).

In his theory of knowledge interests, Habermas does not dismiss the usefulness of positivistic inquiry, nor does he argue that it is necessarily inappropriate to study human society using these methodologies. He does feel, however, that on its own, positivistic inquiry is insufficient to understand social action (Held 1980). What he is most concerned with is retrieving the idea of a 'knowing subject' who plays an active role in constituting the world they know, something he feels has been 'lost' in the pursuit of scientism.

To this end, Habermas follows Dilthey in suggesting that in order to develop knowledge of a socio-cultural phenomenon, the researcher must, "penetrate the language and the social context of the object" (Held 1980, p.309). Texts, experiences, all actions have to be understood within their historical context and the researcher must make an effort to achieve *verstehen*, or a sense of empathetic understanding. However, Habermas sees limitations with relativistic research methodologies as well. Associated with his criticism of historical/hermeneutical sciences is Habermas's belief that truth is not situational and relative. He wishes to hold on to the modernist idea that the truth-value of statements can be established -- through rational discourse. When research is purely descriptive, Habermas feels nothing can be said about the truth-content or the possible deception (ideology) inherent in the thoughts expressed by the subject. What is needed, instead, is a 'depth hermeneutics', "in order to grasp the history of tradition in such a way as to reveal sources of domination and distortion in communication" (Held 1980, p. 315).

Habermas has suggested Freudian psychoanalysis as a model for critical science and Held (1980, p. 324) has outlined a method based on psychoanalytic principles. However, Held's method operates at a higher, more abstract level than what we need for empirical research in MIS. We can benefit from a method which combines Held's model, the approach outlined by Murray and Ozanne for consumer research (1991, p.136-138), and insights from MIS research. Such a critical method might look something like the following:

A Method for Critical Research in Information Systems	
Initiation Stage	
1.	critical research is interested in exploring concrete, practical problems of everyday life (Murray and Ozanne 1991), therefore, this stage involves selecting a practical object or problem, the meaning and nature of which is in question, as the focus of the research effort.
2.	All groups and/or individuals affected by the circumstances surrounding the problem are identified.
Data Collection Stage	
1.	<i>Interpretive Step</i> : develop an empathetic understanding of each stakeholder's

worldview, since behavior can only be understood in light of people's interests. Employ 'dialogue'³, as in traditional hermeneutics, as an essential means of gaining data and exploring possible interpretations.

2. *Historical-empirical Step*: social reality includes not only intersubjective understandings, but also the material forces that may constrain action. The researcher needs to move beyond traditional interpretative techniques, because subjects' accounts of their behaviour include meanings that may remain opaque due to distortion and repression. The goal is to grasp the historical-empirical development of social structures and processes that constrain intersubjective understandings. Past empirical studies may be reviewed, new empirical studies may be conducted (e.g., surveys, etc.)

Analysis Stage

1. *Dialectical Step*: the results from the first two steps are combined into a single analysis. The researcher searches for inconsistencies or contradictions that may arise because intersubjective understandings are slow to form and may sometimes become inconsistent with objective social conditions. Groups constrained by contradictions are identified. "This kind of approach clearly goes beyond understanding the meaning of the data because it points the researcher to 'read' the social world behind the words of the actors, a social world that is characterized by power structures, vested interests, and limited resources to meet the goals of various actors who construct and enact this social world." (Klein and Myers 1999, p.78).
2. *Theoretical step*: The researcher attempts to understand the inconsistencies by elaborating on them and through explanations involving causal connections. Such explanations can only be constructed with reference to a general theory⁴ (itself formulated within terms provided by a metatheory, that is, systematic reflections on the nature of the object domain under review, for instance systems development and structuration theory).

Emancipation Stage

1. *Awareness Step*: the critical researcher hopes to engage social actors in dialogue to help them see their current situation differently and open up alternative ways of acting. Although the researcher can reveal alternative paths, social actors must chart their own course (Orlikowski and Baroudi 1991). At this stage, the researcher's theory is tested by examining whether or not it has the capacity to reveal and dissolve distortions of communication.

Researcher Participation Stage

1. *Praxis step*: the researcher can participate in a theoretically grounded program of action designed to change social conditions and create a better society. Having identified a contradiction, the researcher must envision new, unconstraining social conditions and try to bring them into existence through his/her actions (e.g.,

³ 'Dialogue' in this sense can include transcripts of interviews, field notes from observation and/or reading of background documents (e.g., policy statements, etc.)

⁴ Clarification of this point is offered by Orlikowski and Baroudi (1991) when they suggest that instead of accepting informants' self-understanding at face value, researchers critically analyze informants' statements in light of the particular theoretical framework they adopt for their research. Hence, a researcher adopting a Marxist framework would place a greater emphasis on economic causes and see socio-economic class as the primary site of domination and repression.

Hirschheim and Klein's efforts to align the ETHICS systems development approach with emancipatory principles).

2. *Reflexive step*: Orlikowski and Baroudi (1991, p. 21) suggest "that critical research must also be reflexive, hence transformative not only of the object of investigation, but also of the investigator." The researcher must reflect on how both the outcome of the study and the methods used illuminate his/her own situation and inform future research.

A focus on emancipation

An array of definitions of emancipation can be found in critical theory discourse ranging from the overthrow of capitalism (Orlikowski and Baroudi 1991), through the repeal of working conditions that privilege some while unfairly burdening others (Alvesson and Willmott 1992, Hirschheim and Klein 1994), to the realization by one individual that her understanding of a communication was in error (distorted) (Ngwenyama and Lee 1997). For many researchers located in business schools a definition of emancipation that involves the transcendence or overthrow of capitalism can seem naïve, overwhelming or simply downright uncomfortable. Researchers disagree on the extent to which social research can, or should, focus on emancipation (Klein and Myers 1999) and many North American researchers avoid dealing with issues of power altogether, as has been noted in other contexts (Mizruchi and Fein 1999).

Variations in the definition of emancipation reflect an ongoing process in which researchers are attempting to come to grips with what emancipation can mean in *practical* terms. This fluctuation in the definition of emancipation is mirrored in Habermas's own work. From his earlier work, *Knowledge and Human Interests* (1971), to *The Theory of Communicative Action* (1984, 1987), one change that occurs in Habermas's research program is that "the appeal to an emancipatory cognitive interest is replaced by the claim that reason inheres in speech and linguistic communication" (Seidman 1989, p. 9). The emancipatory interest is now seen to be "achieved through discursive action, where 'the force of the best argument' ... has the right to change a given situation" (Boudreau 1997).

In seeking to recast the concept of emancipation, Alvesson and Willmott (1996, in Koch 2000, p. 359) combine the utopian vision of traditional conceptualizations of emancipation with the idea of small steps toward reform, to arrive at the idea of 'micro-emancipation.' They refashion and mold emancipation in terms of "partial temporary movements that break away from diverse forms of oppression." Micro-emancipation, then, "can be realized in a myriad of projects, each limited in time, space and success, which have elements of expanding autonomy and responsibility and reducing dependence and apathy." It follows that emancipation occurs not only as the result of a group of individuals freeing themselves from the oppression of larger social forces, but also in matters between individuals when one frustrates the efforts of another to dominate or take advantage of them, and at the intra-individual level, when one micro-emancipates him/herself from distorted communications.

The work of Hirschheim and Klein is helpful here as they develop a typology of five ways distortions in communication can occur, through: (1) *authority and illegitimate power*, which create anxieties and cause people to distort or withhold information in order to protect

themselves; (2) *peer opinion pressure*, which creates tunnel vision for the sake of loyalty and reduces the validity of judgement by suppressing validity checks through criticism; (3) *time, space and resource limitations* preventing universal access to knowledge, even though in principle it is available; (4) *social differentiation*, in particular differences in the level of education, specialization, personal values and beliefs; and (5) the *bias and limitation of language use*, e.g., jargon (Hirschheim and Klein 1994, p. 88, italics mine). The identification of causes of communication distortion is useful, because it points researchers to areas where micro-emancipatory actions can be taken. Although it is outside the scope of this paper, others have discussed the role of information and communication technologies in limiting or enhancing personal freedoms related to these five key areas (*cf.* Grant and Higgins 1991, Lim et al. 2000, Ngwenyama and Lee 1997, Webster 1998). Knowledge management research that focuses on the use of information technologies by communities of practice would seem to be one area that might benefit from the application of a critical theory approach. Perhaps by shifting their focus from the rather grandiose discussion of emancipation from larger societal forces to the examination of the role that information systems can play in terms of micro-emancipation, researchers will find the political commitments of critical theory more palatable.

Benefits and drawbacks of a critical theory approach to IS Research

Benefits

One of the fundamental assumptions of critical theory is that people "can act to change their material and social circumstances" (Orlikowski and Baroudi 1991, p. 19), or, put in terms of organizational life, that "organizational actors and/or researchers have the capability to transform organizational situations" (Boudreau 1997). Yet our capacity to effect change is constrained by economic, political and cultural systems of authority that dominate and disenfranchise individuals. Critical theory seeks to find a way to help individuals, groups and organizations overcome and emancipate themselves from such structural constraints.

Orlikowski and Baroudi (1991) summarize some other positive aspects of critical theory for MIS research. First, it alerts us that organizations cannot be studied in isolation of the industry, society, and nation within which they operate. Second, it recognizes the central influence of historical, economic, social, and political conditions on the nature and development of phenomena. Third, it reminds us that the status quo is just one moment in time, social reality continues to evolve dynamically. And fourth, it prompts us to realize that the labour force may, in fact, have the means to mitigate, subvert or transform mechanisms that control them.

Drawbacks

The major drawback of critical theory stems from Habermas's apparent assumption that some change from the status quo is both necessary and desirable. It is possible to conceive of a situation in which the researcher's 'interpretation' is 'correct', the research participant comes to some improved form of self-knowledge through reflection and yet practice may not change. Not everyone may wish to emancipate themselves -- the psychological costs may be too high (Lyytinen and Klein 1985), people may be unwilling or unable to change, or simply not motivated to take part in the debate (Hirschheim and Klein 1989). Similarly, organizations as a

whole may decide that there are other constraints (competitive pressures, for example) that prohibit them from taking what may otherwise be a desirable action.

A further problem comes to light when we seek to know what process individuals desirous of emancipation should follow. Lyytinen and Klein (1985, p. 230) comment

Habermas equates the purpose of emancipatory knowledge interest with emancipation through reflection. But he provides no systematic procedure to assist this reflection... The success of reflection is dependent on the ability of participants to liberate themselves from barriers to knowledge, renounce false beliefs and assumptions and remove their own intellectual and emotional resistance.

This seems a rather large lacunae in Habermas's theory and almost a reversion to earlier critical theorists who viewed emancipation as essentially a cognitive process within an individual's power to change.

Limitations and Suggestions for Future Research

There are a number of limitations to this study, most the result of resource constraints. The time period of the study should probably be extended back to the early 1980s in order to capture the full debate about MIS research methods. Additionally, non-North American journals need to be included in the sample. This limitation has been recognized in previous studies (Orlikowski and Baroudi 1991), but is particularly insidious and difficult to overcome. Some European journals are now indexed in electronic form, but not all articles are available for download, making access to and review of the actual articles a continuing problem. Additional journals that could be reviewed include *Accounting, Management and Information Technology*, *Journal of Information Technology*, the *European Journal of Information Systems*, and *Information Technology & People* (Walsham 1995). Further, it is important to recognize that some critical theory work may not be labeled as such due to the normative influences of peers and publication channels.⁵

Although the number of articles identified for this study was not large, there was a sense that they formed a research tradition and that 'second generation' citations were beginning to occur. That is, original works that discussed critical theory in some detail (especially the Ngwenyama and Lee 1997 and Hirschheim and Klein 1994 articles) are now being referred to by another group of researchers who are building on aspects of their work. While this was noticeable to a certain extent with some of the early work, (in particular Hirschheim, Klein and Lyytinen tended to refer to each other's work), the publication of Ngwenyama and Lee's (1997) article in a journal with as wide a readership as *MIS Quarterly* may lead to, if not an explosion, then at least a minor 'boom' in interest. It could prove instructive to follow the citation pattern of this article over time, in order to assess its impact.

This study sought to examine the way that critical theory has been applied within the MIS field. Articles concerning critical theory, from five major MIS journals dating from 1990 to 2001, were reviewed. While the number of articles was hardly overwhelming, there was evidence of a

⁵ The author acknowledges this idea as the contribution of an earlier reviewer of this paper.

critical research tradition within the MIS literature. In response to the lack of empirical articles found, a method for critical research was proposed. In addition, the various definitions of emancipation were consolidated and a more practical way of thinking about emancipatory efforts was put forward.

References

- Alvesson, M. and Willmott, H. "Critical Theory and Management Studies: An Introduction," in *Critical Management Studies*, M. Alvesson and H. Willmott (eds.) London: Sage, 1992, 1-20.
- Alvesson, M. and Willmott, H. *Making Sense of Management*, London: Sage, 1996.
- Badler, N.I. "Virtual Beings," *Communications of the ACM* (44:3) March 2001, pp. 33-35.
- Benbasat, I. And Weber, R. "Research Commentary: Rethinking 'Diversity' in Information Systems Research," *Information Systems Research*, 7(4), (December 1996), 389-399.
- Boudreau, M.C. "Report on the Discussion at the Panel on Assessing Critical Social Theory Research in Information Systems," IFIP Working Group 8.2, Working Conference in Philadelphia, May 31 to June 3, 1997. Available online: <http://www.people.vcu.edu/~aslee/Philadelphia-CST.htm>
- Clement, A. "Computing at Work: Empowering Action by 'Low-level Users'," *Communications of the ACM* (37:1) January 1994, pp. 53-63, 105.
- Dahlbom, B., and Mathiassen, L. "The Future of Our Profession," *Communications of the ACM*, (40:6) June 1997, pp. 80-89.
- Dryzek, J. S. "Critical theory as a research program," in *The Cambridge Companion to Habermas*, S. K. White (ed.) Cambridge University Press, Cambridge, 1995, pp. 97-119.
- Faucheux, C. "How Virtual Organizing is Transforming Management Science," *Communications of the ACM* (40:9) September 1997, pp. 50-55.
- Forester, J. "Critical ethnography: On Fieldwork in a Habermasian Way," in *Critical Management Studies*, M. Alvesson and H. Willmott (eds.), London: Sage, 1992, 46-65.
- Grant, R.A. and Higgins, C.A. "The Impact of Computerized Performance Monitoring on Service Work: Testing a Causal Model," *Information Systems Research* 2, (1991), 116-142.
- Habermas, J. *Knowledge and Human Interests*, trans. J. J. Shapiro, London: Heinemann, 1971.
- Habermas, J. *Theory and Practice*, trans. J. Viertel, Heineman, London, 1974.
- Habermas, J. *Communication and the Evolution of Society*, Boston: Beacon Press, 1979.
- Habermas, J. *The Theory of Communicative Action: Reason and Rationalization of Society, Volume 1*, Boston: Beacon Press, 1984.
- Habermas, J. *The Theory of Communicative Action: Lifeworld and Social System, Volume 2*, Boston: Beacon Press, 1987.
- Hardgrave, B.C. and Walstrom, K.A. "Forums for MIS Scholars," *Communications of the ACM*, 40(11), (November 1997), 119-124.
- Held, D. *Introduction to Critical Theory*, Berkeley: University of California Press, 1980.
- Hirschheim, R. and Klein, H.K. "Four Paradigms of Information Systems Development," *Communications of the ACM*, 32(10), (October 1989), 1199-1216.
- Hirschheim, R. and Klein, H.K. "Realizing Emancipatory Principles in Information Systems Development: The Case for ETHICS," *MIS Quarterly* 18(1), (March 1994), 83-109.
- Hirschheim, R. and Newman, M. "Symbolism and Information Systems Development: Myth, Metaphor and Magic," *Information Systems Research*, 2(1), (March 1991), 29-62.
- Iivari, J., Hirschheim, R., and Klein, H.K. "A Paradigmatic Analysis Contrasting Information Systems Development Approaches and Methodologies," *Information Systems Research*, 9(2), (June 1998), 164-193.

- Klein, H. K. and Myers, M. D. "A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems," *MIS Quarterly*, 23(1), (March 1999), 67-94.
- Koch, C. "Collective Influence on Information Technology in Virtual Organizations -- Emancipatory Management of Technology?" *Technology Analysis & Strategic Management*, 12(3), (2000), 357-368.
- Kumar, K., van Dissel, H.G. and Bielli, P. "The Merchant of Prato--Revisited: Toward a Third Rationality of Information Systems," *MIS Quarterly*, 22(2), (June 1998), 199-226.
- Lacity, M. C. and Janson, M. A. "Understanding Qualitative Data: A framework of text analysis methods," *Journal of Management Information Systems*, 11(2), (Fall 1994), 137-156.
- Lee, A.S. "Rigor and Relevance in MIS Research: Beyond the Approach of Positivism Alone," *MIS Quarterly*, 23(1), (March 1999), 29-34.
- Leidner, D.E., and Jarvenpaa, S.L. "The Use of Information Technology to Enhance Management School Education: A Theoretical View," *MIS Quarterly*, 19(3), (September 1995), 265-291.
- Lim, K.H., Benbasat, I. and Ward, L.M. "The Role of Multimedia in Changing First Impression Bias," *Information Systems Research*, 11(2), (June 2000), 115-136.
- Lyytinen, K. J. and Klein, H. K. "The Critical Theory of Jurgen Habermas as a Basis for a Theory of Information Systems," in *Research Methods in Information Systems*, Proceedings of the IFIP WG 8.2 Colloquium, Manchester Business School, 1984, E. Mumford, R. Hirschheim, G. Fitzgerald and T. Wood-Harper (eds.) Amsterdam: Elsevier, 1985, 219-236.
- Lyytinen, K. and Hirschheim, R. "Information Systems as Rational Discourse: an Application of Habermas's Theory of Communicative Action," *Scandinavian Journal of Management*, 4(1/2), (1988), 19-30.
- Lyytinen, K. "Information Systems and Critical Theory," in *Critical Management Studies*, M. Alvesson and H. Willmott (eds.) London: Sage, 1992, 159-180.
- Markus, M.L. "Electronic Mail as the Medium of Managerial Choice," *Organization Science* (5:4) 1994, pp. 502-527.
- Mingers, J. "Combining IS Research Methods: Towards a Pluralist Methodology," *Information Systems Research*, 12(3), (September 2001), 240-259.
- Mingers, J. C. "Towards an Appropriate Social Theory for Applied Systems Thinking: Critical Theory and Soft Systems Methodology," *Journal of Applied Systems Analysis*, 7, (1980), 41-49.
- Mizruchi, M.S. and Fein, L.C. "The social construction of organizational knowledge: A study of the uses of coercive, mimetic and normative isomorphism," *Administrative Science Quarterly*, 44, (1999), 653-683.
- Mumford, E. *Designing Human Systems: The ETHICS Method*, Manchester: Manchester Business School, 1983.
- Murray, J. B. and Ozanne, J.L. "The Critical Imagination: Emancipatory Interests in Consumer Research," *Journal of Consumer Research*, 18, (September 1991), 129-144.
- Mylonopoulos, N.A. and Theoarakis, V. "Global Perceptions of IS Journals," *Communications of the ACM*, 44(9), (September 2001), 29-33.
- Ngwenyama, O. and Lee, A. S. "Communication Richness in Electronic Mail: Critical Social Theory and the Contextuality of Meaning," *MIS Quarterly*, 21(2), (June 1997), 145-167.

- Orlikowski, W. J. and Baroudi, J. J. "Studying Information Technology in Organizations: Research Approaches and Assumptions," *Information Systems Research*, 2, (March 1991), 1-28.
- Probert, S. K. "Towards a Critical Framework for IS Research," *Proceedings of the Americas Conference on Information Systems (AMCIS)*, 1999, 172-174.
- Ravichandran, T. and Rai, A. "Quality Management in Systems Development: An Organizational System Perspective," *MIS Quarterly*, 24(3), (September 2000), 381-415.
- Robey, D. "Research Commentary: Diversity in Information Systems Research: Threat, Promise, and Responsibility," *Information Systems Research*, 7(4), (December 1996), 400-408.
- Schultze, U. "A Confessional Account of an Ethnography about Knowledge Work," *MIS Quarterly*, 24(1), (March 2000), 3-41.
- Seidman, S. "Introduction," in *Jurgen Habermas on Society and Politics: a reader*, S. Seidman (ed.), Boston: Beacon Press, 1989, 1-25.
- Sillince, J.A.A. and Mouakket, S. "Varieties of Political Process During Systems Development," *Information Systems Research*, 8(4), (December 1997), 368-397.
- Stein, E. W. and Vandenbosch, B. "Organizational Learning during Advanced System Development: Opportunities and Obstacles," *Journal of Management Information Systems* (13:2) Fall 1996, pp. 115-136.
- Te'eni, D. "Review: A Cognitive-Affective Model of Organizational Communication for Designing IT," *MIS Quarterly*, 25(2), (June 2001), 251-312.
- Venkatesh, V. and Morris, M.G. "Why Don't Mean Ever Stop to Ask for Directions? Gender, Social Influence, and Their Role in Technology Acceptance and Usage Behavior," *MIS Quarterly*, 24(1), (March 2000), 115-139.
- Walsham, G. "The Emergence of Interpretivism in IS Research," *Information Systems Research*, 6(4), (December 1995), 376-394.
- Webster, J. "Desktop Videoconferencing: Experience of Complete Users, Wary Users, and Non-Users," *MIS Quarterly*, 22(3), (September 1998), 257-286.
- Zmud, B. "Editor's Comments," *MIS Quarterly*, 22(3), (September 1998), xlv-xlvi.

Appendix A: Articles Reviewed

Article	Category					Rationale
	Excluded	Mention	Conceptual (comb)	Conceptual (solo)	Empirical	
MISQ						
Te'eni (2001) "Review: a Cognitive-Affective Model of Organizational Communication for Designing IT," 25:2, 251-312.				X		theory of communicative action forms theoretical base for new model of organizational communication
Ravichandran and Rai (2000) "Quality Management in Systems Development: an organizational system perspective," 24:3, 381-415.		X				cites Hirschheim & Klein 1994 re: emancipatory principles of IS development, in review of information systems quality literature
Venkatesh and Morris (2000) "Why Don't men Ever Stop to Ask for Directions? Gender, Social Influence, and Their Role in Technology Acceptance and Usage Behavior," 24:1, 115-139.		X				cites Ngwenyama & Lee (1997). CST identified as one of several theories re: social aspects of IT use.
Schultze (2000) "A Confessional Account of an Ethnography about Knowledge Work," 24:1, 3-41.	X					cites Ngwenyama & Lee's article re: inappropriateness of data-processing view of email, but CST appears only in the title of their article.
Klein and Myers (1999) "A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems," 23:1, 67-94.			X			Describes how research using CST differs from positivist and interpretivist research, but main focus is on the conduct and evaluation of interpretive research.
Lee (1999) "Rigor and Relevance in MIS Research: Beyond the Approach of Positivism Alone," 23:1, 29-34.		X				discusses rigor/relevance debate re: CST
Webster (1998) "Desktop Videoconferencing: Experiences of Complete Users, Wary Users, and Non-Users," 22:3, 257-286.		X				explains that case studies can be positivist, interpretivist or critical. This one does not adopt CST perspective.
Zmud (1998) "Editor's Comments," 22:3, xlv-xlvi.	X					notes that Ngwenyama and Lee 1997 was selected MISQ article of year
Kumar, van Dissel and Bielli (1998) "The Merchant of Prato -- Revisited: Toward a Third Rationality of Information Systems," 22:2, 199-226.		X				Makes reference to the need to test validity claims and suggests technology under discussion may facilitate this process - no other mention of CST.
Ngwenyama and Lee (1997) "Communication Richness in Electronic Mail: Critical Social Theory and the Contextuality of Meaning," 21:2, 145-167.			X			CST compared with positivist and interpretivist approaches. Used as foundation for new definition of communication richness. Includes worked example.

Leidner and Jarvenpaa (1995) "The Use of Information Technology to Enhance Management School Education: A Theoretical View," 19:3, 265-291.	X				mentions that emancipatory learning is part of socioculturism, but no discussion of CST.
Hirschheim and Klein (1994) "Realizing Emancipatory Principles in Information Systems Development: The Case for ETHICS," 18:1, 83-109.				X	looks to neohumanist foundations of CST in order to modify IS development to include emancipation
ISR					
Mingers (2001) "Combining IS Research Methods: Towards a Pluralist Methodology," 12:3, 240-259.			X		uses Habermas' Theory of Communicative Action as partial foundation of argument for multi-method, multi-paradigm research design
Iivari, Hirschheim and Klein (1998) "A Paradigmatic Analysis Contrasting Information Systems Development Approaches and Methodologies," 9:2, 164-193.			X		article consists of comparison of IS development 'approaches'. Suggests Scandinavian stream of speech act based approach to ISD influenced by Habermas' CST.
Sillince and Mouakket (1997) "Varieties of Political Process During Systems Development," 8:4, 368-397.		X			Habermas 1973 cited and validity claims briefly noted in discussion without identifying them as such or mentioning CST
Benbasat and Weber (1996) "Research Commentary: Rethinking 'Diversity' in Information Systems Research," 7:4, 389-399.		X			critical theory identified as one of several "qualitative, intensive, interpretive" research methods used by IS researchers
Robey (1996) "Research Commentary: Diversity in Information Systems Research: Threat, Promise and Responsibility," 7:4, 400-408.		X			cites Orlikowski and Baroudi 1991, noting critical theory as one approach to IS research (along with interpretive and positivistic)
Walsham (1995) "The Emergence of Interpretivism in IS Research," 6:4, 376-394.		X			critical and interpretive research are discussed as alternatives to positivist approaches, but does not describe CST in any detail.
Orlikowski and Baroudi (1991) "Studying Information Technology in Organizations: Research Approaches and Assumptions," 2:1, 1-28.			X		discusses 'critical research' along with positivist and interpretive work as the 3 research epistemologies used by IS researchers. Includes thorough description of each perspective.
Hirschheim and Newman (1991) "Symbolism and Information Systems Development: Myth, Metaphor and Magic," 2:1, 29-62.	X				cites Habermas 1984, but uses it in support of point about scripts. No discussion of CST.
CACM					
Badler (2001) "Virtual Beings," 44:3, 33-35.	X				emancipation of virtual beings discussed but no link to CST
Faucheux, (1997) "How Virtual Organizing is Transforming Management Science," 40:9, 50-55.	X				discusses emancipation and critical reflection but not as part of CST

Dahlbom and Mathiassen, (1997) "The Future of Our Profession," 40:6, 80-89.	X				cites Hirschheim and Klein 1989 and discuss an emancipatory role for engineers, but no reference to CST at all.
Clement (1994) "Computing at Work" Empowering Action by 'Low-level Users'," 37:1, 53-63, 105.	X				briefly discusses 'emancipatory aspects of democratic empowerment', vis-à-vis participative design, but no mention of CST
JMIS					
Stein and Vandenbosch (1996) "Organizational Learning during Advanced System Development: Opportunities and Obstacles," 13:2, 115-136.	X				cites Hirschheim and Klein 1994 (emancipatory principles article) re: using neohumanist principles in system development not new, but make no mention of CST
Lacity and Janson (1994) "Understanding qualitative data: A framework of text analysis methods," 11:2, 137-156.	X				Cite Lyytinen 1985 re: theories of language, but do not discuss CST, although Habermas 1979 does appear in references.
Articles Identified during Review of Initial Round Papers					
Hirschheim and Klein (1989) "Four Paradigms of Information Systems Development," CACM, 32:10, 1199- 1216.			X		discusses four IS development paradigms including neohumanist. Focus is on Habermas' theory of knowledge interests
Lyytinen and Klein (1985) "The Critical Theory of Jurgen Habermas as a Basis for a Theory of Information Systems," in Research Methods in Information Systems, E. Mumford et al. (eds.) Elsevier Science Publishers, Amsterdam, pp. 219-236				X	provides an extensive overview of Habermas' theory, especially the theory of knowledge interests.
Lyytinen (1992) "Information Systems and Critical Theory," in Critical Management Studies, M. Alvesson and H. Willmott (eds.) Sage Publications, London, pp. 159-180.				X	discusses dual influence of CST on IS field re: Habermas's work on knowledge-constitutive interests and the theory of communicative action.
Forester (1992) "Critical Ethnography: On Fieldwork in a Habermasian Way," in Critical Management Studies, M. Alvesson and H. Willmott (eds.) Sage Publications, London, pp. 46-65					X focus is on Theory of Communicative Action and speech- act theory, i.e. how people <i>do</i> things with the words they speak.
Lyytinen and Hirschheim (1988) "Information systems as rational discourse: an application of Habermas's theory of communicative action," Scandinavian Journal of Management, 4:1/2, 19-30.				X	expands discussion of Habermas's theory to include Theory of Communicative Action
Mingers (1980) "Towards an Appropriate Social Theory for Applied Systems Thinking: Critical Theory and Soft Systems Methodology," Journal of Applied Systems Analysis, 7:1, 41- 49.			X		discusses Habermas's 'attack' on systems theory and systems analysis in light of his critique of science and technology. Highlights similarities between CST and soft systems methodology.